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The relevance of "Santa Pudia" calcarenite: a natural stone to preserve heritage buildings in Andalusia (Spain)

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“Santa Pudia” calcarenite, extracted in quarries from Granada (Andalusia, Spain), is a very important ornamental stone used in some of the main historical buildings in Andalusia, and particularly in the city of Granada. It has been used mainly outdoors with structural purposes (ashlars, columns), but is also used as decorative element in façades, pinnacles, etc. There are two main quarries, one historical (“Las Parideras”) and another one currently under exploitation (“La Escribana”). Both were the source for all the material to make the different cited elements. Some of the main historical buildings using this stone in their construction, in one way or other, are the cathedral, The Royal Chapel, the Royal Hospital, San Juan de Dios monastery, the Royal Chancery or Carlos V Palace in the Alhambra, all of them in the city of Granada. In recent days, this natural stone has been used in the restoration of the Mosque of Córdoba and the Cinco Llagas Hospital in Seville. Although the main reference in industry for this natural stone is “Calcarenita de Santa Pudia”, it can be found as well cited in the old literature under the denomination of “Piedra Franca”. From a geological point of view is a white to yellow calcarenite, part of the Tortonian deposits of the Guadalquivir Basin (Post-Orogenic Neogene Basins of the Betic Chains). It’s made up mainly by micritic matrix of calcite, with fragments of bioclasts (about 90%) including molluscs, echinoderms, briozoan, red algae and foraminifera. Other components, like metamorphic quartz, moscovite and/or schist or gneiss (rock fragments from the nearby metamorphic basement), can be found as well. The rock is poorly cemented with sparitic calcite. Regarding the main physical and mechanical properties, this rock has an open porosity between 25–36%, bulk density of 1,74 g/cm3, water absorption values at atmospheric pressure of 16%, compressive strength (dry) of 11 MPa, flexural strength (dry) of 2,3 MPa and salt crystallization loss of mass of 5%. It is a natural stone that easily decays in urban environments, therefore the importance of its proper knowledge and characterization. This natural stone, because of its relevance in the main heritage buildings in the monumental city of Granada can be considered a very important natural stone in Andalusia. Its nomination as Global Heritage Stone Resource will help to preserve the material, both in quarries and in historical buildings. This will guarantee the conservation and availability of material for future restoration works when needed. Its nomination is important as well to avoid the mistakes that can be produced from the equal name that is given to other natural stones quarried these days, not only in Andalusia (e.g. Piedra Dorada or Piedra Franca from Porcuna, in Jaén), but in other parts of Spain as well (e.g. Villamayor sandstone or Piedra Franca, quarried in Salamanca).
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